XIX. *Remarks upon a Paſſage in* Caſtillione's *Life of Sir* ISAAC NEWTON. *By* John Winthrop, *LL. D.* Holliſian *Profeſſor of Mathematics, at* Cambridge, *in* New England.

Redde, Jan. 20, 1774.

THERE is a paſſage in CASTILLIONE's life of Sir ISAAC NEWTON, prefixed to his edition of the OPUSCULA, in three volumes 4to. publiſhed at Lauſanne and Geneva in 1744, which appears to me a palpable miſtake; and tends to place Sir ISAAC NEWTON in an inferior light to DES CARTES, in the eyes of foreigners. It is this, p. xxxii: "Sæpiùs ſe reprehendebat [NEUTONUS] "quòd res merè geometricas algebraïcis rationibus "tractaviſſet, & quòd libro ſuo de Algebrâ *Arith-"meticæ Univerſalis* titulum poſuiſſet, meliùs aſ-"ſerens CARTESIUM ſuum de re eâdem volumen "dixiſſe *Geometriam*, ut ſic oſtenderet has com-"putationes ſubſidia tantùm eſſe Geometris ad "inveniendum." The authority he quotes for this is Dr. PEMBERTON, in the preface to his *View of Sir* ISAAC NEWTON's *Philoſophy*; but I will venture to ſay, he has miſinterpreted his Author. He repreſents Dr. PEMBERTON as ſaying; 1ſt, That Sir ISAAC NEWTON often cenſured

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ſured *himſelf* for handling geometrical ſubjects by algebraic calculations: 2dly, That another thing he often cenſured *himſelf* for, was, his having called his book of Algebra by the name of *Univerſal Arithmetic*: 3dly, That he commended DES CARTES, as having done better, in giving the title of *Geometry* to his treatiſe on the ſame ſubject.—The two laſt particulars, certainly, and I think the firſt alſo, have no foundation in the account Dr. PEMBERTON has given of this matter. His words are: "I have often heard him [Sir ISAAC] "cenſure the handling geometrical ſubjects by al-"gebraic calculations; and his book of Algebra "he called by the name of Univerſal Arithmetic, "in oppoſition to the injudicious title of Geome-"try, which DES CARTES had given to the trea-"tiſe, wherein he ſhews, how the geometer may "aſſiſt his invention by ſuch kind of computa-"tions."—Dr. PEMBERTON's expreſſion does not at all imply, that Sir ISAAC NEWTON cenſured *himſelf* for handling geometrical ſubjects by algebraic calculations: the only idea it ſuggeſts, is, that he cenſured that way in general, and thoſe who practiſed it, and that he had his eye particularly upon DES CARTES;—and, far from intimating, that he had inconſiderately called his book of Algebra by the name of *Univerſal Arithmetic*, and afterwards cenſured himſelf for doing ſo, and wiſhed that he had rather called it *Geometry*, as DES CARTES did his; it directly affirms, on the contrary, that by expreſs deſign and choice, he called it *Arithmetic*, in *oppoſition* to DES CARTES's *injudicious* title of *Geometry*.

It

It is true, indeed, that in a following paſſage, Dr. PEMBERTON ſays, "of their [the antients] taſte "and form of demonſtration, Sir ISAAC always "profeſſed himſelf a great admirer: *I have heard "him even cenſure himſelf for not following them "yet more cloſely than he did*; and ſpeak with "regret of his miſtake, at the beginning of "his mathematical ſtudies, in applying himſelf "to the works of DES CARTES, and other alge-"braic writers, before he had conſidered the ele-"ments of EUCLID with that attention, which "ſo excellent a writer deſerves."—But the mode of expreſſion here uſed, is ſo different from the foregoing, that there can be no doubt, but that it was intended to convey a different meaning. And if, in the cenſure firſt mentioned, viz. "*for "handling geometrical ſubjects by algebraic cal-"culations*," Dr. PEMBERTON had underſtood that Sir ISAAC meant to include *himſelf*, this laſt paſſage would have been a mere tauto-logy. But this laſt ſtrongly implies, on the contrary, that Sir ISAAC had, in general, endeavoured to *follow cloſely the antient geometrical* form of demonſtration, in preference to that by *algebraic* calculation; which is of modern invention.

There is a remarkable inſtance of the attention he paid to the diſtinction between theſe methods, and of the preference he gave to the former, in his great work of the *Principia*. Having in Lemma XIX. and its Corollaries, given a conciſe and elegant ſolution of a noted geometric Problem, he ſubjoins: "Atque ita problematis veterum de quatuor lineis ab EUCLIDE incepti, & ab APOLLONIO continuati, *non calculus, ſed compoſitio geometrica*, qualem veteres quærebant, in hoc corollario exhibetur.” That the words, “*non calculus ſed compoſitio geometrica*,” refer to DES CARTES's prolix, algebraic ſolution of this Problem, in his *Geometry*, p. 25—34, will, I believe, be readily granted by every one, that is acquainted with Sir ISAAC NEWTON's writings.

Upon the whole, I humbly conceive, that Dr. PEMBERTON's meaning, in the former paſſage, might have been better expreſſed in Latin, as follows: “Sæpiùs eos reprehendebat, qui res merè geometricas algebraïcis rationibus tractaviſſent; et libro ſuo de Algebrâ *Arithmeticæ Univerſalis* titulum ponebat, aſſerens CARTESIUM ſuum de re eâdem volumen inſcitè dixiſſe *Geometriam*, in quo oſtendit, quomodo hæ computationes ſubſidia eſſe poſſunt geometris ad inveniendum.” Which of theſe tranſlations does moſt juſtly expreſs the ſenſe of the original, may, I ſuppoſe, be ſafely left to the judgement of every perſon that underſtands both the languages.

I would only add, that this miſtake of CASTILLIONE, muſt have been owing, either to inadvertence, or to his not being perfectly acquainted with the Engliſh language; as he elſewhere appears to have had the higheſt veneration for Sir ISAAC NEWTON.

This miſtake may, to ſome, appear trivial; but, in my apprehenſion, every circumſtance, relative to ſo illuſtrious a character as that of Sir ISAAC

NEWTON.

NEWTON, derives importance from it; and ought to be marked with great exactneſs.

The foregoing remarks are, with all deference, ſubmitted to the judgement of the ROYAL SOCIETY, by

Their moſt obedient,

humble Servant,

Cambridge, New England,
March 4, 1773.

JOHN WINTHROP.